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DICTIONARY FILE UPDATES: 29 MAR 2011 HIGHEST RN 1272065-66-3

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=> fil heap
FILE 'HCAPLUS' ENTERED AT 15:35:11 ON 30 MAR 2011
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FILE COVERS 1907 - 30 Mar 2011 VOL 154 ISS 14
FILE LAST UPDATED: 29 Mar 2011 (20110329/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2011
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2011

HCAPLUS now includes complete International Patent Classification (IPC)
reclassification data for the fourth quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate
substance identification.

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=> d que stat 162
L1      2 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  US2006-588481/AP

L4      1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  BIPHENYL/CN
L5      1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  ISOPROPYLBENZEN
E/CN
L6      1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  VINYL BENZENE/CN

L7      1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  ETHYLBENZENE/CN

L8      1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  TOLUENE/CN
L9      1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  T-BUTYLBENZENE/
CN
L12     1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  THIOPHENE/CN
L13     1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  CYCLOHEXYLBENZE
NE/CN
L16     47196 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L4
L17     13306 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L5
L18     81745 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L6
L19     32688 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L7
L20     115160 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L8
L21     3436 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L9
L24     14762 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L12
L25     1834 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L13
L28     QUE SPE=ON  ABB=ON  PLU=ON  (LI OR LITHIUM) (A) SALT
L29     QUE SPE=ON  ABB=ON  PLU=ON  ELECTROLY?
L30     QUE SPE=ON  ABB=ON  PLU=ON  ELECTROLY? (A) (SOLVENT OR SOL
UTION)
L31     799 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L16 AND L17
L32     11 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L31 AND L29
L33     2 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L32 AND L28
L34     8046 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L18 AND L19
L35     44 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L34 AND L29
L36     2 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L35 AND L28
L37     QUE SPE=ON  ABB=ON  PLU=ON  LI OR LITHIUM
L45     1951 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L20 AND L21
L46     27 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L45 AND L29
L47     1 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L46 AND L28
L52     49 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L24 AND L25
L53     12 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L52 AND L37
L54     6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L53 AND L28
L58     6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L54 AND L30
L60     8 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L36 OR L47 OR
L58 OR L33
L62     7 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L60 NOT L1

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=> d ibib abs hitstr hitind 162 1-7

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L62 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2010:1632085 HCAPLUS Full-text
DOCUMENT NUMBER: 154:92307
TITLE: High voltage electrolyte
INVENTOR(S): Muldoon, John; Allred, Gary; Dotse, Anthony
PATENT ASSIGNEE(S): Toyota Motor Engineering & Manufacturing North
America, Inc., USA
SOURCE: PCT Int. Appl., 16pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

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LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2010151639	A2	20101229	WO 2010-US39781	20100624
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM US 20110008680 A1 20110113 US 2010-822444 20100624				
PRIORITY APPLN. INFO.:			US 2009-219996P	P 20090624

OTHER SOURCE(S): MARPAT 154:92307

- AB An organic electrolyte solvent includes a compound of the formula: R1-SO2-NR2-OR3 wherein R1 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs. and perfluorinated analogs; R2 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs.; R3 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs. wherein the electrolyte solvent is stable at voltages of greater than 4.0 V.
- IT 110-02-1, Thiophene 827-52-1, Cyclohexylbenzene
 RL: MOA (Modifier or additive use); USES (Uses) (high voltage electrolyte)
- RN 110-02-1 HCAPLUS
- CN Thiophene (CA INDEX NAME)



- RN 827-52-1 HCAPLUS
- CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M0010-0569 [I,A]; H01M0010-0567 [I,A]; H01M0010-0525 [I,A];
 C07C0311-01 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 57-50-1D, nitrile derivs., uses 75-52-5, Nitromethane, uses
 79-22-1, Methyl chloroformate 92-85-3, Thianthrene 96-47-9,
 2-Methyltetrahydrofuran 96-49-1, Ethylene carbonate 96-49-1D,
 Ethylene carbonate, halogenated 96-54-8, N-Methylpyrrole
 100-66-3, Anisole, uses 100-66-3D, Anisole, fluoro derivs.
 100-69-6, 2-Vinylpyridine 102-09-0, Diphenyl carbonate 103-26-4,
 Methyl cinnamate 107-13-1, Acrylo nitrile, uses 108-05-4, Vinyl
 acetate, uses 108-31-6, Maleic anhydride, uses 108-95-2D,
 Phenol, carboxyl derivative 109-73-9, Butylamine, uses 110-00-9,
 Furan 110-00-9D, Furan, derivs. 110-02-1, Thiophene
 110-42-9, Methyl decanoate 112-02-7, Cetyl trimethylammonium
 chloride 112-66-3, Dodecyl acetate 123-56-8, Succinimide
 287-87-6D, Borole, compound 289-56-5D, Boroxine, compds. 358-63-4,
 Tris(2,2,2-trifluoroethyl)phosphate 538-75-0 541-59-3, Maleimide
 554-14-3, 2-Methylthiophene 604-88-6, Hexaethylbenzene
 613-32-1D, Dihydrophenazine, derivs. 670-54-2, Tetracyanoethylene
 680-31-9, Hexamethyl phosphoramidate 778-22-3, 2,2-Diphenylpropane
 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate
 872-50-4, 1-Methyl-2-pyrrolidinone, uses 996-50-9,
 N,N-Diethylaminotrimethylsilane 1109-15-5,
 Tris(pentafluorophenyl)borane 1303-86-2, Boron oxide (B2O3), uses
 1314-56-3, Phosphorus oxide (P2O5), uses 1330-20-7, Xylene, uses
 1469-70-1, Allyl ethyl carbonate 4074-90-2, Divinyl adipate
 4427-96-7, Vinyl ethylene carbonate 6627-89-0, Phenyl tert-butyl
 carbonate 7323-63-9 7440-42-8D, Boron, compds., Lithium
 salts 7446-09-5, Sulfur dioxide, uses 7664-38-2D,
 Phosphoric acid, trialkyl ester 7664-39-3, Hydrogen fluoride, uses
 7704-34-9D, Sulfur, compds. 7784-23-8, Aluminum iodide
 7789-24-4, Lithium fluoride, uses 9004-34-6D, Cellulose,
 nitrile derivs. 13139-17-8, N-Benzyloxy carbonyloxy succinimide
 13283-31-3D, Borane, compound 13781-53-8, 3-Thiopheneacetoneitrile
 13841-20-8, Tin iodide (SnI) 14213-97-9D, Borate, compound
 15477-76-6, Phosphonate 27215-51-6, Tetramethylphenylenediamine
 29457-72-5, Lithium perfluorooctanesulfonate 31900-57-9,
 Polydimethylsiloxane 37275-48-2, Biprydil 50314-39-1,
 2,7-Diacetylthianthrene 56773-42-3, Tetraethylammonium
 perfluorooctanesulfonate 114435-02-8, Fluoroethylene carbonate
 126213-50-1, 3,4-Ethylenedioxythiophene 409071-16-5 522639-16-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (high voltage electrolyte)

IT 7791-03-9, Lithium perchlorate 14283-07-9,
 Lithium tetrafluoroborate 14485-20-2, Lithium
 tetraphenylborate 18424-17-4, Lithium
 hexafluoroantimonate 21324-40-3, Lithium
 hexafluorophosphate 29935-35-1, Lithium
 hexafluoroarsenate 33454-82-9, Lithium triflate
 90076-65-6 131651-65-5, Lithium
 nonafluorobutanesulfonate 132404-42-3, Lithium
 tris(trifluoromethanesulfonyl)methane 132843-44-8 244761-29-3,
 Lithium bisoxalato borate 338746-29-5
 RL: TEM (Technical or engineered material use); USES (Uses)
 (high voltage electrolyte)

DOCUMENT NUMBER: 153:339575
 TITLE: High-voltage electrolyte with organic solvent for batteries
 INVENTOR(S): Muldoon, John; Allred, Gary; Ankeney, Scott
 Michael; Matsui, Masaki; Dotse, Anthony;
 Sugimoto, Tsuyoshi
 PATENT ASSIGNEE(S): Toyota Motor Engineering & Manufacturing North America, Inc., USA; Synthonix Corporation;
 Toyota Motor Corporation
 SOURCE: PCT Int. Appl., 21 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2010096404	A2	20100826	WO 2010-US24354	20100309
WO 2010096404	A9	20101118		
WO 2010096404	A3	20110113		
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA				
US 20100209780	A1	20100819	US 2009-371979	20090217
PRIORITY APPLN. INFO.:			US 2009-371979	A 20090217

OTHER SOURCE(S): MARPAT 153:339575
 AB A battery that includes a cathode, anode and an electrolytic solution contains an organic electrolyte solvent having a formula R1-CO-NR2-OR3, wherein R1 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs. and perfluorinated analogs; R2 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs.; R3 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs. wherein the electrolyte is stable at voltages of greater than 4.0 V.
 IT 110-02-1, Thiophene 827-52-1
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (overcharge protecting additive; high-voltage electrolyte with organic solvent for batteries)
 RN 110-02-1 HCAPLUS
 CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M [I,S]; H01M0010-0569 [I,A]; H01M0010-0525 [I,A]; H01M0010-0567 [I,A]
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 IT Polyethers
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (perfluoro, lithium depositing additive; high-voltage electrolyte with organic solvent for batteries)
 IT Fluoropolymers
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (polyether-, perfluoro, lithium depositing additive; high-voltage electrolyte with organic solvent for batteries)
 IT 57-50-1D, nitrile derivs., uses 75-52-5, uses 96-47-9 112-02-7 554-14-3 7446-09-5D, Sulfur dioxide, compds. 7664-39-3, Hydrofluoric acid, uses 7784-23-8, Aluminum iodide (AlI3) 9004-34-6D, Cellulose, nitrile derivs. 29457-72-5 37349-59-0, Tin iodide 56773-42-3 114435-02-8
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (lithium depositing additive; high-voltage electrolyte with organic solvent for batteries)
 IT 92-52-4, 1,1'-Biphenyl, uses 92-85-3, Thianthrene 96-54-8 100-66-3D, compds. 110-00-9, Furan 110-02-1, Thiophene 604-88-6 613-32-1D, derivs. 670-54-2, 1,1,2,2-Ethenetetra carbonitrile 778-22-3 827-52-1 1330-20-7, uses 6627-89-0 7323-63-9 13781-53-8, 3-Thiopheneacetonitrile 27215-51-6 50314-39-1 126213-50-1 142990-38-3 522639-16-3
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (overcharge protecting additive; high-voltage electrolyte with organic solvent for batteries)
 IT 358-63-4 680-31-9 872-50-4, uses 7789-24-4, Lithium fluoride (LiF), uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (salt stabilizer; high-voltage electrolyte with organic solvent for batteries)
 IT 79-22-1 96-49-1, 1,3-Dioxolan-2-one 96-49-1D, 1,3-Dioxolan-2-one, halogenated 100-69-6 103-26-4 107-13-1, 2-Propenenitrile, uses 108-05-4, Acetic acid ethenyl ester, uses 108-31-6, 2,5-Furandione, uses 123-56-8, 2,5-Pyrrolidinedione

289-56-5D, Boroxin, compds. 541-59-3, 1H-Pyrrole-2,5-dione
 872-36-6, 1,3-Dioxol-2-one 1109-15-5 1303-86-2, Boron oxide
 (B2O3), uses 1469-70-1 4074-90-2 4427-96-7 7440-42-8D,
 Boron, lithium salt-based compds. 13139-17-8D,
 aromatic isocyanates 29656-58-4 31900-57-9 42557-10-8
 RL: MOA (Modifier or additive use); TEM (Technical or engineered
 material use); USES (Uses)
 (solid electrolyte interface forming additive; high-voltage
 electrolyte with organic solvent for batteries)
 IT 12125-02-9D, Ammonium chloride ((NH4)Cl), Tetraalkyl
 RL: MOA (Modifier or additive use); TEM (Technical or engineered
 material use); USES (Uses)
 (with long alkyl chain, lithium depositing additive;
 high-voltage electrolyte with organic solvent for batteries)

L62 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2010:1042953 HCAPLUS Full-text

DOCUMENT NUMBER: 153:339470

TITLE: High-voltage electrolyte with organic solvent
for batteries

INVENTOR(S): Muldoon, John; Allred, Gary; Ankeney, Scott;
Matsui, Masaki; Dotse, Anthony; Sugimoto,
Tsuyoshi

PATENT ASSIGNEE(S): Toyota Motor Engineering & Manufacturing North
America, Inc., USA; Synthonix Corporation;
Toyota Motor Corporation

SOURCE: U.S. Pat. Appl. Publ., 8pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20100209780	A1	20100819	US 2009-371979	20090217
WO 2010096404	A2	20100826	WO 2010-US24354	20100309
WO 2010096404	A9	20101118		
WO 2010096404	A3	20110113		
W:	AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA			

PRIORITY APPLN. INFO.: US 2009-371979

A 200902

AB A battery that includes a cathode, anode and an electrolytic solution contains an organic electrolyte solvent having a formula R1-CO-NR2-OR3, wherein R1 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs. and perfluorinated analogs; R2 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs.; R3 is selected from alkanes, alkenes, alkynes, aryls and their substituted derivs. wherein the electrolyte is stable at voltages of greater than 4.0 V.

IT 110-02-1, Thiophene 827-52-1,
Cyclohexylbenzene
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(overcharge protecting additive; high-voltage electrolyte with organic solvent for batteries)

RN 110-02-1 HCAPLUS

CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



INCL 429326000; 564209000; 429339000

IPCI H01M0006-16 [I,A]; C07C0233-01 [I,A]

IPCR H01M0006-16 [I,C]; H01M0006-16 [I,A]; C07C0233-00 [I,C]; C07C0233-01 [I,A]

NCL 429/326.000; 429/339.000; 564/209.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Polyethers
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(perfluoro, lithium depositing additive; high-voltage electrolyte with organic solvent for batteries)

IT Fluoropolymers
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(polyether-, perfluoro, lithium depositing additive; high-voltage electrolyte with organic solvent for batteries)

IT 110-82-7, Cyclohexane, uses 1314-56-3, Phosphorus oxide, uses 409071-16-5, Lithium difluoro(oxalato)borate
RL: TEM (Technical or engineered material use); USES (Uses)
(corrosion inhibitor and wetting agent; high-voltage electrolyte with organic solvent for batteries)

IT 7791-03-9, Lithium perchlorate 14283-07-9,
Lithium tetrafluoroborate 14485-20-2, Lithium
tetraphenylborate 18424-17-4, Lithium
hexafluoroantimonate 21324-40-3, Lithium

- hexafluorophosphate 29935-35-1, Lithium
 hexafluoroarsenate 33454-82-9, Lithium triflate
 90076-65-6 90076-65-6, Lithium
 bistrifluoromethylsulfonfyl imide 119229-99-1, Lithium
 Bis (perfluorobutanesulfonfyl) imide 132404-42-3 132843-44-8,
 Lithium Bis (pentafluoroethanesulfonfyl) imide 244761-29-3,
 Lithium bis(oxalato)borate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte; high-voltage electrolyte with organic solvent for
 batteries)
- IT 57-50-1, Sucrose, uses 75-52-5, Nitromethane, uses 96-47-9,
 2-Methyltetrahydrofuran 112-02-7, Cetyltrimethylammonium chloride
 554-14-3, 2-Methylthiophene 7446-09-5D, Sulfur dioxide, compds.
 7664-39-3, Hydrogenfluoride, uses 7784-23-8, Aluminum Iodide
 9004-34-6D, Cellulose, nitrile derivs. 29457-72-5, Lithium
 perfluorooctanesulfonate 37349-59-0, Tin iodide 56773-42-3,
 Tetraethylammonium perfluorooctanesulfonate 114435-02-8,
 Fluoroethylene carbonate
 RL: MOA (Modifier or additive use); TEM (Technical or engineered
 material use); USES (Uses)
 (lithium depositing additive; high-voltage electrolyte
 with organic solvent for batteries)
- IT 92-52-4, Biphenyl, uses 92-85-3, Thianthrene 96-54-8
 100-66-3D, Anisole, compds. 110-00-9, Furan 110-02-1,
 Thiophene 604-88-6, Hexaethyl benzene 613-32-1D,
 Dihydrophenazine, derivs. 670-54-2, Tetracyanoethylene 778-22-3,
 2,2-Diphenylpropane 827-52-1, Cyclohexylbenzene
 1330-20-7, Xylene, uses 6627-89-0, Phenyl-tert-butyl carbonate
 7323-63-9, 2,5-Di(tert-butyl)-1,4-dimethoxybenzene 13781-53-8,
 3-Thiopheneacetonitrile 27215-51-6, Tetramethylphenylenediamine
 50314-39-1, 2,7-Diacetyl thianthrene 126213-50-1,
 3,4-Ethylenedioxythiophene 142990-38-3 522639-16-3
 RL: MOA (Modifier or additive use); TEM (Technical or engineered
 material use); USES (Uses)
 (overcharge protecting additive; high-voltage electrolyte with
 organic solvent for batteries)
- IT 358-63-4, Tris(2,2,2-trifluoroethyl) phosphate 680-31-9,
 Hexamethyl-phosphoramide 872-50-4, 1-Methyl-2-pyrrolidinone, uses
 7789-24-4, Lithium fluoride, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (salt stabilizer; high-voltage electrolyte with organic solvent for
 batteries)
- IT 79-22-1, Methyl chloroformate 96-49-1, Ethylene carbonate
 96-49-1D, Ethylene carbonate, halogenated 100-69-6, 2-Vinyl
 pyridine 103-26-4, Methyl cinnamate 107-13-1, 2-Propenenitrile,
 uses 108-05-4, Vinyl acetate, uses 108-31-6, Maleic anhydride,
 uses 108-95-2D, Phenol, carboxyl derivs., uses 123-56-8,
 Succinimide 289-56-5D, Boroxine, compds. 541-59-3, Maleimide
 872-36-6, Vinylene carbonate 1109-15-5, Tris(pentafluorophenyl)
 borane 1303-86-2, Boron trioxide, uses 1469-70-1, Allyl ethyl
 carbonate 4074-90-2, Divinyl adipate 4427-96-7, Vinyl ethylene
 carbonate 7440-42-8D, Boron, lithium salt
 -based compds. 13139-17-8D, N-Benzoyloxy carbonyloxy succinimide,
 aromatic isocyanates 31900-57-9, Polydimethylsiloxane
 RL: MOA (Modifier or additive use); TEM (Technical or engineered
 material use); USES (Uses)
 (solid electrolyte interface forming additive; high-voltage
 electrolyte with organic solvent for batteries)
- IT 12125-02-9D, Ammonium chloride, Tetraalkyl
 RL: MOA (Modifier or additive use); TEM (Technical or engineered

material use); USES (Uses)
 (with long alkyl chain, lithium depositing additive;
 high-voltage electrolyte with organic solvent for batteries)

L62 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2009:1174696 HCAPLUS Full-text

DOCUMENT NUMBER: 151:474416

TITLE: Electrolyte compatible with high-boiling-point
 non-aqueous organic solvent and functional
 additives for lithium manganese power
 battery with high safety, excellent high
 temperature property and long cycle life

INVENTOR(S): Li, Yongkun; Liu, Jiansheng; Yang, Chunwei;
 Zhang, Ruoxin; Zhang, Liping

PATENT ASSIGNEE(S): Guangzhou Tinci Materials Technology Co., Ltd.,
 Peop. Rep. China

SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu,
 10pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 101540419	A	20090923	CN 2009-10039035	200904 28

PRIORITY APPLN. INFO.: CN 2009-10039035
 200904
 28

AB An electrolyte for lithium manganese power battery comprises lithium salt
 (lithium
 hexafluorophosphate, lithium tetrafluoroborate, etc.), high-boiling-point non-
 aqueous organic solvent, film forming additive (vinylene carbonate, 1,3-
 propane sultone, etc.) 0.5-5 wt%, overcharge preventing additive (thiophene,
 furan, etc.) 2-10 weight%, acidity and water content controlling additive
 (amines, alkylsilazane, etc.) 0.01-0.5 weight%, and lithium salt stabilizer
 (tris(2,2,2-trifluoroethyl)phosphite (TFPP), pyrimidine, etc.) 0.1-5 weight%.
 The non-aqueous organic solvent is selected from carbonate (ethylene
 carbonate, etc.) and its halogenated derivative (chloroethylene carbonate,
 etc.), carboxylate (Me formate, Et formate, etc.), sulfonate (ethylene sulfite
 or propylene sulfite), and/or phosphate (tri-Me phosphate, tri-Et phosphate,
 etc.). By controlling proportion of non-aqueous organic solvent and adding
 various functional additives, lithium manganese power battery adopting the
 inventive electrolyte has high safety, excellent high temperature property and
 long cycle life.

IT 110-02-1, Thiophene 827-52-1,
 Cyclohexylbenzene

RL: NUU (Other use, unclassified); USES (Uses)

(overcharge preventing additive, electrolyte containing; Electrolyte
 compatible with high-boiling-point non-aqueous organic solvent and
 functional additives for lithium manganese power
 battery)

RN 110-02-1 HCAPLUS

CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M0010-40 [I,A]; H01M0010-36 [I,C*]
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium manganate secondary battery electrolyte org
 solvent
 IT Battery electrolytes
 (Electrolyte compatible with high-boiling-point non-aqueous organic
 solvent and functional additives for lithium manganate
 power battery)
 IT Secondary batteries
 (lithium; Electrolyte compatible with
 high-boiling-point non-aqueous organic solvent and functional additives
 for lithium manganate power battery)
 IT Solvents
 (organic; Electrolyte compatible with high-boiling-point non-aqueous
 organic solvent and functional additives for lithium
 manganate power battery)
 IT 109-90-0, Ethyl isocyanate
 RL: NUU (Other use, unclassified); USES (Uses)
 (Electrolyte compatible with high-boiling-point non-aqueous organic
 solvent and functional additives for lithium manganate
 power battery)
 IT 107-15-3, Ethylenediamine, uses 141-43-5, Ethanolamine, uses
 21324-40-3, Heptamethyldisilazane 996-50-9,
 Trimethyl-silyl-diethylamine 999-97-3, Hexamethyldisilazane
 3088-27-5, Carbinolamine
 RL: TEM (Technical or engineered material use); USES (Uses)
 (acidity and water content controlling additive, electrolyte
 containing; Electrolyte compatible with high-boiling-point non-aqueous
 organic solvent and functional additives for lithium
 manganate power battery)
 IT 14283-07-9, Lithium tetrafluoroborate (LiBF₄)
 21324-40-3, Lithium hexafluorophosphate (LiPF₆)
 244761-29-3, Lithium bis(oxalato)borate 409071-16-5
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte containing; Electrolyte compatible with
 high-boiling-point non-aqueous organic solvent and functional additives
 for lithium manganate power battery)
 IT 872-36-6, Vinylene carbonate 1120-71-4, 1,3-Propane sultone
 1633-83-6, 1,4-Butane sultone 4427-96-7, Vinyl ethylene carbonate
 RL: NUU (Other use, unclassified); USES (Uses)
 (film forming additive, electrolyte containing; Electrolyte
 compatible with high-boiling-point non-aqueous organic solvent and
 functional additives for lithium manganate power

battery)

IT 103-71-9, Phenyl isocyanate, uses 289-95-2, Pyrimidine
 RL: NUU (Other use, unclassified); USES (Uses)
 (lithium salt stabilizer, electrolyte containing;
 Electrolyte compatible with high-boiling-point non-aqueous organic
 solvent and functional additives for lithium manganate
 power battery)

IT 78-40-0, Triethyl phosphate 79-20-9, Methyl acetate 96-49-1,
 Ethylene carbonate 105-37-3, Ethyl propionate 105-54-4, Ethyl
 butyrate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate
 108-32-7, Propylene carbonate 109-60-4, Propyl acetate 109-94-4,
 Ethyl formate 126-73-8, Tributyl phosphate, uses 141-78-6, Ethyl
 acetate, uses 512-56-1, Trimethyl phosphate 616-38-6, Dimethyl
 carbonate 623-42-7, Methyl butyrate 623-53-0, Methyl ethyl
 carbonate 1469-73-4, Propylene sulfite 2463-45-8 3741-38-6,
 Ethylene sulfite 3967-54-2, Chloroethylene carbonate 56525-42-9,
 Methyl propyl carbonate 114435-02-8, Fluoroethylene carbonate
 RL: NUU (Other use, unclassified); USES (Uses)
 (organic solvent, electrolyte containing;
 Electrolyte compatible with high-boiling-point non-aqueous organic
 solvent and functional additives for lithium manganate
 power battery)

IT 92-52-4, Biphenyl, uses 100-84-5, 3-Methylanisole 101-84-8,
 Diphenyl ether 102-54-5, Ferrocene 104-93-8, 4-Methylanisole
 110-00-9, Furan 110-02-1, Thiophene 132-65-0,
 Dibenzothiophene 271-89-6, Benzofuran 321-28-8, 2-Fluoroanisole
 352-70-5, 3-Fluorotoluene 459-60-9, 4-Fluoroanisole 578-58-5,
 2-Methylanisole 623-12-1, 4-Chloroanisole 827-52-1,
 Cyclohexylbenzene 1330-20-7, Xylene, uses 2845-89-8,
 3-Chloroanisole
 RL: NUU (Other use, unclassified); USES (Uses)
 (overcharge preventing additive, electrolyte containing; Electrolyte
 compatible with high-boiling-point non-aqueous organic solvent and
 functional additives for lithium manganate power
 battery)

L62 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2008:1481216 HCAPLUS Full-text
 DOCUMENT NUMBER: 150:22297
 TITLE: Non-aqueous electrolytes for lithium
 -ion secondary batteries
 INVENTOR(S): Lee, Ho-Chun; Jeon, Jong-Ho; Cho, Jeong-Ju
 PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea
 SOURCE: PCT Int. Appl., 15pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2008150134	A1	20081211	WO 2008-KR3186	200806 05
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU,				

LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
 NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL,
 SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
 ZA, ZM, ZW
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
 HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE,
 SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
 NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ,
 TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 KR 2008108043 A 20081211 KR 2008-53251 200806
 05
 EP 2160787 A1 20100310 EP 2008-766148 200806
 05
 R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
 HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO,
 SE, SI, SK, TR, AL, BA, MK, RS
 JP 2010529618 T 20100826 JP 2010-511122 200806
 05
 CN 101682084 A 20100324 CN 2008-80018975 200912
 04
 US 20100273065 A1 20101028 US 2010-663117 201007
 06
 PRIORITY APPLN. INFO.: KR 2007-55532 A 200706
 07
 WO 2008-KR3186 W 200806
 05

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
 OTHER SOURCE(S): MARPAT 150:22297

AB This electrolyte consists of a Li salt and an organic solvent. The organic solvent contains a carbonate compound, a linear ester compound and a linear ester decomposition inhibitor. This nonaq. electrolyte solution inhibits swelling while improving low temperature charging/discharging characteristics of the secondary battery in comparison to a conventional electrolyte, since it contains the linear ester compound and the linear ester decomposition inhibitor. The nonaq. electrolyte solution may be used in making a Li-ion secondary battery.

IT 110-02-1, Thiophene 110-02-1D, Thiophene, halogenated 827-52-1, Cyclohexyl benzene 827-52-1D, Cyclohexyl benzene, halogenated
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (non-aqueous electrolytes for lithium-ion secondary batteries)

RN 110-02-1 HCAPLUS
 CN Thiophene (CA INDEX NAME)



RN 110-02-1 HCAPLUS
 CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 827-52-1 HCAPLUS
 CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M0010-40 [I,A]; H01M0010-36 [I,C*]
 IPCR H01M0010-00 [I,C*]; H01M0010-0525 [I,A]; H01M0010-0567 [I,A];
 H01M0010-0569 [I,A]; H01M0010-36 [I,C*]; H01M0010-36 [I,A]
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 21
 ST nonaq electrolyte lithium ion secondary battery
 IT Polysiloxanes
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (derivs.; non-aqueous electrolytes for lithium-ion secondary batteries)
 IT Secondary batteries
 (lithium; non-aqueous electrolytes for lithium -ion secondary batteries)
 IT Battery electrolytes
 (non-aqueous electrolytes for lithium-ion secondary batteries)
 IT 62-53-3, Aniline, uses 62-53-3D, Aniline, halogenated 92-52-4, Biphenyl, uses 92-52-4D, Biphenyl, halogenated 96-48-0, γ -Butyrolactone 96-48-0D, γ -Butyrolactone, halogenated 108-29-2, γ -Valerolactone 108-29-2D, γ -Valerolactone, halogenated 109-74-0, Butyronitrile 109-74-0D, Butyronitrile, halogenated 109-97-7, Pyrrole 109-97-7D, Pyrrole, halogenated 110-02-1, Thiophene 110-02-1D, Thiophene, halogenated 110-59-8, Valeronitrile 110-59-8D, Valeronitrile, halogenated 110-61-2, Succinonitrile 110-61-2D, Succinonitrile, halogenated 111-69-3, Adiponitrile 111-69-3D, Adiponitrile, halogenated 358-63-4 358-63-4D, halogenated 628-73-9, Hexanenitrile 628-73-9D, Hexanenitrile, halogenated

827-52-1, Cyclohexyl benzene 827-52-1D,
Cyclohexyl benzene, halogenated 7803-62-5, Silane, uses
7803-62-5D, Silane, halogenated 25496-08-6, Fluoro toluene
25496-08-6D, Fluoro toluene, halogenated
RL: MOA (Modifier or additive use); TEM (Technical or engineered
material use); USES (Uses)

(non-aqueous electrolytes for lithium-ion secondary
batteries)

IT 96-49-1, Ethylene carbonate 105-37-3, Ethyl propionate 105-58-8,
Diethyl carbonate 106-36-5, Propyl propionate 108-32-7,
Propylene carbonate 554-12-1, Methyl propionate 590-01-2, Butyl
propionate 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl
carbonate 4437-85-8, Butylene carbonate 7791-03-9,
Lithium perchlorate (LiClO₄) 14283-07-9 18424-17-4,
Lithium hexafluoro antimonate 21324-40-3, Lithium
hexafluorophosphate (LiPF₆) 29935-35-1, Lithium
hexafluoro arsenate (LiAsF₆) 33454-82-9, Lithium
triflate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl
propyl carbonate 90076-65-6 114435-02-8 132404-42-3
132843-44-8

RL: TEM (Technical or engineered material use); USES (Uses)
(non-aqueous electrolytes for lithium-ion secondary
batteries)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN
THE RE FORMAT

L62 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2006:689399 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:127638

TITLE: Nonaqueous electrolyte solution for
lithium secondary batteries

INVENTOR(S): Ahn, Sun Ho; Cho, Jeong Ju; Kim, Hyeong Jin;
Lee, Han Ho; Lee, Ho Chun; Lee, Jae Heon; Son,
Mi Yeong

PATENT ASSIGNEE(S): Lg Chem. Ltd., S. Korea

SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7

DOCUMENT TYPE: Patent

LANGUAGE: Korean

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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KR 2004023870	A	20040320	KR 2002-55309	200209 12
PRIORITY APPLN. INFO.:			KR 2002-55309	200209 12

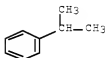
AB In this Li battery with a nonaq. electrolyte solution overcharge current is
blocked through polymerization of electrolyte components by degradation due to
oxidation, thereby improving safety. The nonaq. electrolyte solution
comprises a Li salt, an electrolyte solution compound, 0.5-5% of a
nonconductive polymer monomer, and 0.1-2% of a conductive polymer monomer.
Preferably the nonconductive polymer monomer is cyclohexylbenzene,
isopropylbenzene or 5-butylbenzene; and the conductive polymer monomer is

biphenyl, 1-phenyl-1-cyclohexane or benzofuran. The Li secondary battery comprises a cathode, an anode, a porous separator, and the nonaq. electrolyte solution

IT 92-52-4, Biphenyl, uses 98-82-8,
Isopropylbenzene
RL: DEV (Device component use); USES (Uses)
(electrolyte containing; nonaq. electrolyte solution
for lithium secondary batteries with safety feature)
RN 92-52-4 HCAPLUS
CN 1,1'-Biphenyl (CA INDEX NAME)



RN 98-82-8 HCAPLUS
CN Benzene, (1-methylethyl)- (CA INDEX NAME)



IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C*]
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium secondary battery nonaq electrolyte safety
IT Secondary batteries
(lithium; nonaq. electrolyte solution for lithium
secondary batteries with safety feature)
IT Battery electrolytes
Safety
(nonaq. electrolyte solution for lithium secondary
batteries with safety feature)
IT 92-52-4, Biphenyl, uses 98-82-8,
Isopropylbenzene 135-98-8 271-89-6, Benzofuran 827-52-1
RL: DEV (Device component use); USES (Uses)
(electrolyte containing; nonaq. electrolyte solution
for lithium secondary batteries with safety feature)

L62 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2002:773833 HCAPLUS Full-text
DOCUMENT NUMBER: 137:303358
TITLE: Secondary power source and its manufacture
INVENTOR(S): Kuruma, Isamu; Morimoto, Takeshi; Tsushima,
Manabu
PATENT ASSIGNEE(S): Japan Carlit Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002298849	A	20021011	JP 2001-103633	20010402
WO 2002082568	A1	20021017	WO 2002-JP3305	20020402

W: CN, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR

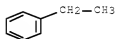
PRIORITY APPLN. INFO.:

JP 2001-103633	A	20010402
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AB The power source has an activated C pos. electrode, a neg. electrode of graphitic carbonaceous material, having d002 0.334-0.337 nm, coated with a low crystallinity carbonaceous material, and an electrolyte solution containing a Li salt dissolved in an organic solvent. The power source is prepared by contacting the graphitic material with an organic vapor, and pyrolyzing the vapor to form the low crystallinity coating.

IT 100-41-4, Ethylbenzene, processes 100-42-5, Styrene, processes
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (in manufacture of graphitic carbon with low crystallinity carbonaceous coatings for neg. electrodes for secondary power source)

RN 100-41-4 HCAPLUS
 CN Benzene, ethyl- (CA INDEX NAME)



RN 100-42-5 HCAPLUS
 CN Benzene, ethenyl- (CA INDEX NAME)



IPCI H01M0004-58 [ICM,7]; C01B0031-04 [ICS,7]; C01B0031-00 [ICS,7,C*]; C23C0016-26 [ICS,7]; H01G0009-058 [ICS,7]; H01G0009-038 [ICS,7]; H01G0009-022 [ICS,7,C*]; H01M0004-02 [ICS,7]; H01M0010-40 [ICS,7]; H01M0010-36 [ICS,7,C*]

IPCR C01B0031-00 [I,C*]; C01B0031-04 [I,A]; C23C0016-26 [I,C*]; C23C0016-26 [I,A]; H01G0009-022 [I,C*]; H01G0009-038 [I,A]; H01G0009-058 [I,C*]; H01G0009-058 [I,A]; H01M0004-02 [I,C*]; H01M0004-02 [I,A]; H01M0004-36 [N,C*]; H01M0004-36 [N,A]; H01M0004-58 [I,C*]; H01M0004-58 [I,A]; H01M0010-36 [I,C*]; H01M0010-40 [I,A]

CC 76-10 (Electric Phenomena)
 Section cross-reference(s): 52

ST secondary power source lithium salt

electrolyte carbon electrode; activated carbon pos electrode
secondary power source; graphitic carbonaceous neg electrode
secondary power source manuf

- IT Capacitors
(double layer; secondary power source containing activated carbon pos electrodes and graphitic carbon neg. electrodes and lithium salt electrolytes)
- IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(graphitized; secondary power source containing activated carbon pos electrodes and graphitic carbon neg. electrodes and lithium salt electrolytes)
- IT Secondary batteries
(lithium; secondary power source containing activated carbon pos electrodes and graphitic carbon neg. electrodes and lithium salt electrolytes)
- IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(secondary power source containing activated carbon pos electrodes and graphitic carbon neg. electrodes and lithium salt electrolytes)
- IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(activated; secondary power source containing activated carbon pos electrodes and graphitic carbon neg. electrodes and lithium salt electrolytes)
- IT 71-43-2, Benzene, processes 74-82-8, Methane, processes 74-84-0, Ethane, processes 74-85-1, Ethylene, processes 74-86-2, Acetylene, processes 74-98-6, Propane, processes 91-20-3, Naphthalene, processes 98-95-3, Nitrobenzene, processes 100-41-4, Ethylbenzene, processes 100-42-5, Styrene, processes 106-97-8, Butane, processes 108-88-3, Toluene, processes 108-90-7, Chlorobenzene, processes 109-66-0, Pentane, processes 1330-20-7, Xylene, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(in manufacture of graphitic carbon with low crystallinity carbonaceous coatings for neg. electrodes for secondary power source)
- OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

=> d que stat 161

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L6	1	SEA FILE=REGISTRY	SPE=ON	ABB=ON	PLU=ON	VINYLBENZENE/CN
L7	1	SEA FILE=REGISTRY	SPE=ON	ABB=ON	PLU=ON	ETHYLBENZENE/CN
L8	1	SEA FILE=REGISTRY	SPE=ON	ABB=ON	PLU=ON	TOLUENE/CN
L9	1	SEA FILE=REGISTRY	SPE=ON	ABB=ON	PLU=ON	T-BUTYLBENZENE/ CN
L12	1	SEA FILE=REGISTRY	SPE=ON	ABB=ON	PLU=ON	THIOPHENE/CN
L13	1	SEA FILE=REGISTRY	SPE=ON	ABB=ON	PLU=ON	CYCLOHEXYLBENZ NE/CN
L16	47196	SEA FILE=HCAPLUS	SPE=ON	ABB=ON	PLU=ON	L4
L17	13306	SEA FILE=HCAPLUS	SPE=ON	ABB=ON	PLU=ON	L5
L18	81745	SEA FILE=HCAPLUS	SPE=ON	ABB=ON	PLU=ON	L6

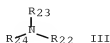
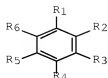
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 L24 14762 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L12
 L25 1834 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L13
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 L29 QUE SPE=ON ABB=ON PLU=ON ELECTROLY?
 L30 QUE SPE=ON ABB=ON PLU=ON ELECTROLY? (A) (SOLVENT OR SOLUTION)
 L31 799 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L16 AND L17
 L32 11 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L31 AND L29
 L33 2 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L32 AND L28
 L34 8046 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L18 AND L19
 L35 44 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L34 AND L29
 L36 2 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L35 AND L28
 L37 QUE SPE=ON ABB=ON PLU=ON LI OR LITHIUM
 L38 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L35 AND L37
 L39 QUE SPE=ON ABB=ON PLU=ON BATTERY
 L40 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L35 AND L39
 L41 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L36 OR L38 OR L40
 L42 6 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L32 AND L37
 L43 6 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L32 AND L39
 L44 7 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L33 OR (L42 OR L43)
 L45 1951 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L20 AND L21
 L46 27 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L45 AND L29
 L47 1 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L46 AND L28
 L48 6 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L46 AND L39
 L49 7 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L46 AND L37
 L50 8 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L48 OR L49
 L52 49 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L24 AND L25
 L53 12 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L52 AND L37
 L54 6 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L53 AND L28
 L55 10 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L52 AND L39
 L57 10 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L53 AND L55
 L58 6 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L54 AND L30
 L60 8 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L36 OR L47 OR L58 OR L33
 L61 16 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON (L41 OR L44 OR L50 OR L57) NOT L60

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L61 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2010:169650 HCAPLUS Full-text
 DOCUMENT NUMBER: 152:243759
 TITLE: Secondary nonaqueous electrolyte
 batteries and devices using the
 batteries
 INVENTOR(S): Watanabe, Shoichiro; Iwamoto, Kazuya; Ueda,
 Atsushi; Nunome, Jun; Koshina, Hizuru
 PATENT ASSIGNEE(S): Panasonic Corporation, Japan
 SOURCE: Jpn. Tokkyo Koho, 16pp.; Chemical Indexing
 Equivalent to 134:103242 (WO)
 CODEN: JTXXF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 4411691	B2	20100210	JP 1999-184931	19990630
JP 2001015158	A	20010119		
WO 2001003226	A1	20010111	WO 2000-JP4291	20000629
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1215745	A1	20020619	EP 2000-940876	20000629
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
CN 1190864	C	20050223	CN 2000-806979	20000629
JP 2002050398	A	20020215	JP 2001-166615	20010601
JP 3633510	B2	20050330		
KR 2007037749	A	20070406	KR 2007-7005770	20070313
US 20080014496	A1	20080117	US 2007-780317	20070719
JP 2010027616	A	20100204	JP 2009-229435	20091001
PRIORITY APPLN. INFO.:			JP 1999-184931	A 19990630
			WO 2000-JP4291	W 20000629
			US 2001-959429	A1 20011025
			KR 2001-7013915	A3 20011030



AB The batteries have Li containing multiple oxide cathodes, Li intercalating anodes, and a nonaq. electrolyte solution in a solvent containing ≥ 1 organic compound, which has HOMO energy -8.5 to -11.0 eV and LUMO energy -0.135 to 3.5 eV. The compound is preferably a benzene derivative I (R1-6 = H alkyl, aryl, or amino groups, but not all R's being H; and neighboring alkyl groups may join together to form a 5- or 6-membered ring); a substituted ethylene II (R11-14 = H, alkyl, alkoxy, aryl, or oxycarbonyl R15OCO group; and alkyl substituents on the same C atom may joined together to form a 5- or 6-membered ring); or an amine derivative III (R21-23 = alkyl or aryl groups). The devices may be elec. or electronic devices.

IT 110-02-1, Thiophene 827-52-1

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(electrolyte solns. containing organic compound having controlled HOMO and LUMO energy for secondary lithium batteries)

RN 110-02-1 HCAPLUS

CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M0010-0567 [I,A]; H01M0010-0569 [I,A]; H01M0010-0525 [I,A];
H01M0010-0564 [I,A]; H01M0010-0587 [I,A]; H01M0002-34 [I,A];
H01M0002-20 [I,C*]

IPCR H01M0010-00 [I,C]; H01M0010-0567 [I,A]; H01M0002-20 [I,C];
H01M0002-34 [I,A]; H01M0006-00 [N,C*]; H01M0006-04 [N,C*];
H01M0006-10 [N,A]; H01M0006-50 [N,A]; H01M0010-0525 [I,A];
H01M0010-0564 [I,A]; H01M0010-0569 [I,A]; H01M0010-0587 [I,A];
H01M0010-36 [I,C*]; H01M0010-40 [I,A]; H01M0010-42 [N,C*];
H01M0010-42 [N,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery electrolyte solvent
org compd

IT Battery electrolytes
(electrolyte solns. containing organic compound having controlled HOMO and LUMO energy for secondary lithium batteries)

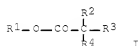
IT 77-73-6 80-62-6 91-21-4 91-73-6 92-52-4, 1,1'-Biphenyl, uses

92-54-6 92-94-4, 1,1':4',1''-Terphenyl 110-02-1,
 Thiophene 111-02-4 477-75-8 513-81-5 612-71-5 613-31-0
 620-40-6 695-12-5 764-99-8 827-52-1 855-38-9
 926-02-3 992-04-1 1087-02-1 1192-37-6 1321-74-0, uses
 1610-39-5 1633-22-3 7785-70-8 17249-80-8 18794-84-8
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO and
 LUMO energy for secondary lithium batteries)
 IT 96-49-1, 1,3-Dioxolan-2-one 105-58-8 21324-40-3 51013-18-4
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO and
 LUMO energy for secondary lithium batteries)
 OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS
 RECORD (7 CITINGS)

L61 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2009:796668 HCAPLUS Full-text
 DOCUMENT NUMBER: 151:128553
 TITLE: Nonaqueous electrolyte secondary
 battery
 INVENTOR(S): Takahashi, Kentaro
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 8pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20090170007	A1	20090702	US 2008-342667	200812 23
JP 2009163937	A	20090723	JP 2007-340514	200712 28
CN 101471459	A	20090701	CN 2008-10190203	200812 26
PRIORITY APPLN. INFO.:			JP 2007-340514	A 200712 28

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
 OTHER SOURCE(S): MARPAT 151:128553
 GI



AB A non-aqueous electrolyte secondary cell is provided having enhanced safety against overcharge and reduced self-discharge. The non-aqueous electrolyte secondary cell includes: a pos. electrode having a pos. electrode active

material; a neg. electrode having a neg. electrode active material; and a non-aqueous electrolyte containing a non-aqueous solvent and electrolytic salt. The non-aqueous solvent contains 20 to 80 volume% tertiary carboxylic acid ester represented by formula (I) at 25° and 1 atmospheric. The non-aqueous electrolyte contains an alkylbenzene compound and/or a halogenated benzene compound where R1 to R4 each denote a straight-chained or branched alkyl group having 4 or less carbon atoms and may be the same or different.

IT 98-06-6, tert-Butylbenzene 108-88-3, Toluene,
uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte secondary battery)
RN 98-06-6 HCAPLUS
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 108-88-3 HCAPLUS
CN Benzene, methyl- (CA INDEX NAME)



INCL 429343000
IPCI H01M0010-00 [I,A]
IPCR H01M0010-00 [I,C]; H01M0010-00 [I,A]
NCL 429/343.000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST nonaq electrolyte secondary battery safety
IT Carboxylic acids
RL: TEM (Technical or engineered material use); USES (Uses)
(esters, tertiary; nonaq. electrolyte secondary battery)
IT Battery electrolytes
Secondary batteries
(nonaq. electrolyte secondary battery)
IT 71-43-2D, Benzene, alkyl derivative 71-43-2D, Benzene, halogenated
96-49-1, Ethylene carbonate 98-06-6, tert-Butylbenzene
100-41-4, Ethylbenzene, uses 104-51-8, n-Butylbenzene
108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses
321-28-8, 2-Fluoroanisole 372-18-9, 1,3-Difluorobenzene
372-38-3, 1,3,5-Trifluorobenzene 452-10-8, 2,4-Difluoroanisole
456-49-5, 3-Fluoroanisole 462-06-6, Fluorobenzene 598-98-1,
Methyl trimethyl acetate 827-52-1, Cyclohexylbenzene 2049-95-8,
tert-Amylbenzene 3938-95-2, Ethyl trimethyl acetate 93343-10-3,
3,5-Difluoroanisole 1166834-84-9
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte secondary battery)

ACCESSION NUMBER: 2009:146058 HCAPLUS Full-text
 DOCUMENT NUMBER: 150:218258
 TITLE: Swelling inhibition in batteries
 INVENTOR(S): Mikhaylik, Yuriy V.; Kovalev, Igor
 PATENT ASSIGNEE(S): Sion Power Corporation, USA
 SOURCE: U.S. Pat. Appl. Publ., 12pp.; Chemical Indexing
 Equivalent to 150:218253 (WO)
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

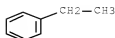
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20090035646	A1	20090205	US 2007-888339	20070731
WO 2009017726	A1	20090205	WO 2008-US9158	20080729

W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: US 2007-888339 A 20070731

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention relates generally to electrochem. cells, and more specifically, to additives for electrochem. cells which may enhance the performance of the cell. In some cases, the additive may advantageously interact with at least one component or species of the cell to increase the efficiency and/or lifetime of the cell. The incorporation of certain additives within the electrolyte of the cell may improve the cycling lifetime and/or performance of the cell.
 IT 100-41-4, Ethylbenzene, uses 100-42-5, Styrene, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (swelling inhibition in batteries)
 RN 100-41-4 HCAPLUS
 CN Benzene, ethyl- (CA INDEX NAME)



RN 100-42-5 HCAPLUS
 CN Benzene, ethenyl- (CA INDEX NAME)



INCL 429050000; 429163000; 429188000
 IPCI H01M0006-14 [I,A]
 IPCR H01M0006-14 [I,C]; H01M0006-14 [I,A]
 NCL 429/050.000; 429/163.000; 429/188.000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST battery swelling inhibition
 IT Swelling, physical
 (prevention; swelling inhibition in batteries)
 IT Alkenes
 Alkynes
 RL: MOA (Modifier or additive use); USES (Uses)
 (substituted; swelling inhibition in batteries)
 IT Battery electrolytes
 Secondary batteries
 (swelling inhibition in batteries)
 IT 91-16-7, 1,2-Dimethoxybenzene 91-20-3, Naphthalene, uses
 95-47-6, o-Xylene, uses 98-08-8, Trifluoromethylbenzene 98-82-8,
 Isopropylbenzene 100-41-4, Ethylbenzene, uses
 100-42-5, Styrene, uses 100-66-3, Methoxybenzene, uses
 100-69-6, 2-Vinylpyridine 103-73-1, Ethoxybenzene 104-93-8,
 4-Methylanisole 108-38-3, m-Xylene, uses 108-48-5, 2,6-Lutidine
 110-86-1, Pyridine, uses 150-78-7, 1,4-Dimethoxybenzene
 151-10-0, 1,3-Dimethoxybenzene 230-07-9, 4,7-Phenanthroline
 290-37-9, Pyrazine 366-18-7, 2,2'-Dipyridine 501-65-5,
 Diphenylacetylene 538-86-3, Methylbenzyl ether 543-53-3,
 Pyridinium nitrate 637-69-4, 4-Methoxystyrene 645-05-6,
 Hexamethylmelamine 1321-74-0, Divinylbenzene, uses 1942-45-6,
 4-Octyne 20734-58-1, 1,8-Bis(dimethylamino)naphthalene
 24057-28-1, Pyridinium p-toluenesulfonate 52193-54-1, Pyridinium
 triflate 84752-61-4, Pyridine 3-nitrobenzenesulfonate
 165960-71-4, Pyridine, 2,6-dimethyl-, nitrate 917369-34-7
 RL: MOA (Modifier or additive use); USES (Uses)
 (swelling inhibition in batteries)
 IT 110-71-4, 1,2-Dimethoxyethane 646-06-0, 1,3-Dioxolane 7439-93-2,
 Lithium, uses 7790-69-4, Lithium nitrate
 9003-47-8, Polyvinylpyridine 26222-40-2, Styrene/4-vinylpyridine
 copolymer 90076-65-6, Lithium
 bis(trifluoromethanesulfoneimide)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (swelling inhibition in batteries)

L61 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2009:140215 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 150:218253
 TITLE: Swelling inhibition in batteries
 INVENTOR(S): Mikhaylik, Yuriy V.; Kovalev, Igor
 PATENT ASSIGNEE(S): Sion Power Corporation, USA
 SOURCE: PCT Int. Appl., 31pp.; Chemical Indexing
 Equivalent to 150:218258 (US)
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent

LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2009017726	A1	20090205	WO 2008-US9158	20080729
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM US 20090035646 A1 20090205 US 2007-888339 20070731				
PRIORITY APPLN. INFO.:			US 2007-888339	A 20070731

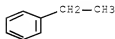
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention relates generally to electrochem. cells, and more specifically, to additives for electrochem. cells which may enhance the performance of the cell. In some cases, the additive may advantageously interact with at least one component or species of the cell to increase the efficiency and/or lifetime of the cell. The incorporation of certain additives within the electrolyte of the cell may improve the cycling lifetime and/or performance of the cell.

IT 100-41-4, uses 100-42-5, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (swelling inhibition in batteries)

RN 100-41-4 HCAPLUS

CN Benzene, ethyl- (CA INDEX NAME)



RN 100-42-5 HCAPLUS
 CN Benzene, ethenyl- (CA INDEX NAME)



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ICR H01M0004-62 [I,C]; H01M0004-62 [I,A]; H01M0010-42 [I,C]; H01M0010-42
[I,A]
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST battery swelling inhibition
IT Secondary batteries
    (lithium; swelling inhibition in batteries)
IT Swelling, physical
    (prevention; swelling inhibition in batteries)
IT Alkenes
    Alkynes
    RL: MOA (Modifier or additive use); USES (Uses)
        (substituted; swelling inhibition in batteries)
IT Battery electrolytes
    (swelling inhibition in batteries)
IT 91-16-7 91-20-3, Naphthalene, uses 95-47-6, uses 98-08-8
    98-82-8 100-41-4, uses 100-42-5, uses
    100-66-3, uses 100-69-6 103-73-1 104-93-8 108-38-3, uses
    108-48-5 110-86-1, Pyridine, uses 150-78-7 151-10-0
    230-07-9, 4,7-Phenanthroline 290-37-9, Pyrazine 366-18-7,
    2,2'-Bipyridine 501-65-5 538-86-3 543-53-3 637-69-4
    645-05-6 1321-74-0, uses 1942-45-6, 4-Octyne 20734-58-1
    24057-28-1 52193-54-1 84752-61-4 165960-71-4 917369-34-7
    RL: MOA (Modifier or additive use); USES (Uses)
        (swelling inhibition in batteries)
IT 110-71-4 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium,
    uses 7790-69-4 9003-47-8 26222-40-2 90076-65-6
    RL: TEM (Technical or engineered material use); USES (Uses)
        (swelling inhibition in batteries)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN
THE RE FORMAT

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L61 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2007:793705 HCAPLUS Full-text
DOCUMENT NUMBER: 147:193049
TITLE: Additives for nonaqueous electrolyte
and lithium secondary battery
using the same
INVENTOR(S): Lee, Ho Chun; Shin, Sun Sik; Park, Hong Kyu;
Jeon, Joo Mi; Cho, Jeong Ju
PATENT ASSIGNEE(S): Lg Chem, Ltd., S. Korea
SOURCE: U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070166609	A1	20070719	US 2007-623845	20070117
KR 2007076522	A	20070724	KR 2007-5085	20070117
KR 789107	B1	20071226		
WO 2007083917	A1	20070726	WO 2007-KR276	20070117

17
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, AY, KG, KZ, MD, RU, TJ, TM
EP 19/9979 A1 20081015 EP 2007-708501
200701
17
R: DE, FR, GB, SE
CN 101375459 A 20090225 CN 2007-80003300
200701
17
CN 101375459 B 20101027
PRIORITY APPLN. INFO.: KR 2006-5058 A
200601
17
WO 2007-KR276 W
200701
17

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Disclosed is an electrolyte for batteries, comprising: (a) an electrolyte salt; (b) an organic solvent; (c) a first compound having an oxidation initiation voltage (vs. Li/Li+) higher than the operating voltage of a cathode; and (d) a second reversible compound having an oxidation initiation voltage higher than the operating voltage of the cathode, but lower than the oxidation initiation voltage of the first compound Also disclosed is a lithium secondary battery comprising the electrolyte. In the lithium secondary battery, two compds. having different safety improvement actions at a voltage higher than the operating voltage of the cathode are used in combination as electrolyte components. Thus, the safety of the secondary battery in an overcharged state can be ensured, and at the same time, the deterioration of the battery can be prevented from occurring when it is repeatedly cycled, continuously charged and stored at high temperature for a long time.

IT 98-06-6, tert-Butylbenzene 108-88-3, Toluene,
uses
RL: MOA (Modifier or additive use); USES (Uses)
(additives for nonaq. electrolyte of lithium
secondary battery)

RN 98-06-6 HCAPLUS
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 108-88-3 HCAPLUS

CN Benzene, methyl- (CA INDEX NAME)



INCL 429105000; 429324000; 429200000; 429326000
 IPCI H01M0008-20 [I,A]; H01M0010-40 [I,A]
 IPCR H01M0008-20 [I,C]; H01M0008-20 [I,A]; H01M0010-00 [I,C*];
 H01M0010-0525 [I,A]; H01M0010-0567 [I,A]; H01M0010-36 [I,C*];
 H01M0010-36 [I,A]
 NCL 429/105.000; 429/200.000; 429/324.000; 429/326.000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST electrolyte additive lithium secondary
 battery; safety electrolyte additive
 lithium secondary battery
 IT Battery electrolytes
 Safety
 (additives for nonaq. electrolyte of lithium
 secondary battery)
 IT Secondary batteries
 (lithium; additives for nonaq. electrolyte of
 lithium secondary battery)
 IT 92-52-4, Biphenyl, uses 98-06-6, tert-Butylbenzene
 100-66-3D, Anisole, derivs. 104-51-8, Butylbenzene
 108-88-3, Toluene, uses 827-52-1, Cyclohexylbenzene
 1743-87-9 2049-95-8, tert-Amylbenzene 25496-07-5, Fluorobiphenyl
 25496-08-6, Fluorotoluene 31424-56-3, Di(tert-Butylbenzene)
 96141-26-3, DiBromodimethoxybenzene 522639-16-3 847567-67-3
 944257-03-8 944257-05-0 944257-07-2
 RL: MOA (Modifier or additive use); USES (Uses)
 (additives for nonaq. electrolyte of lithium
 secondary battery)
 IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate
 21324-40-3, Lithium hexafluorophosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (additives for nonaq. electrolyte of lithium
 secondary battery)

L61 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2006:1065902 HCAPLUS Full-text
 DOCUMENT NUMBER: 145:400980
 TITLE: Electrolyte solutions for secondary
 batteries and secondary
 batteries
 INVENTOR(S): Ishikawa, Hitoshi; Utsuki, Koji; Kusachi, Yuki
 PATENT ASSIGNEE(S): Nec Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 39pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006278106

A

20061012

JP 2005-94513

200503

29

PRIORITY APPLN. INFO.:

JP 2005-94513

200503

29

OTHER SOURCE(S): MARPAT 145:400980

AB The solution contains (A) electrolyte salt, (B) aprotic solvent, (C) compound which polymerizes, decomps. with emission of gases, or are redox reactive under a voltage equal or above the maximum battery driving voltage, e.g. (partially hydrogenated) biphenyl, cyclobenzylhexyl, di-Ph ether, and (D) R3SO2CR1R4SO2R2 (R1, R4 = H, (un)substituted C1-5 alkyl, alkoxy, or fluoroalkyl, C1-5 polyfluoroalkyl, SO2X1; SY1, COZ, halogen; R2, R3 (un)substituted C1-5 alkyl, alkoxy, or fluoroalkyl, (un)substituted phenoxy, C1-5 polyfluoroalkyl, C1-5 polyfluoroalkoxy, OH, halo, NX2X3, NY2CONY3Y4; X1, Y1 = (un)substituted C1-5 alkyl; X2, X3, Y2-4, Z = H (un)substituted C1-5 alkyl). The solution may also contain cyclic mono- or disulfonic acid esters (given in Markush). Secondary batteries using the electrolyte solns. are also claimed. The batteries may be packed in laminates. The batteries are safe even when over-charged.

IT 92-52-4, Biphenyl, uses 98-82-8, Cumene
 110-02-1, Thiophene 827-52-1, Cyclohexylbenzene
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing disulfonylmethanes for secondary batteries with overcharging safety)

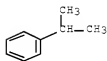
RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (CA INDEX NAME)



RN 110-02-1 HCAPLUS

CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M0010-40 [I,A]; H01M0010-36 [I,C*]; H01M0002-02 [I,A];
H01M0004-02 [I,A]; H01M0004-38 [I,A]; H01M0004-58 [I,A]

IPCR H01M0010-36 [I,C]; H01M0010-40 [I,A]; H01M0002-02 [I,C]; H01M0002-02 [I,A]; H01M0004-02 [I,C]; H01M0004-02 [I,A]; H01M0004-38 [I,C];
H01M0004-38 [I,A]; H01M0004-58 [I,C]; H01M0004-58 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery disulfonylmethane deriv
electrolyte additive; overcharging safety secondary
battery sulfonylmethane additive electrolyte;
cyclin sulfone secondary battery electrolyte
additive

IT Solvents
(aprotic; electrolyte solns. containing disulfonylmethanes
for secondary batteries with overcharging safety)

IT Ethers, uses
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(cyclic, (fluorinated); electrolyte solns. containing
disulfonylmethanes for secondary batteries with
overcharging safety)

IT Carbonates, uses
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(cyclic, linear, fluorinated, solvent; electrolyte
solns. containing disulfonylmethanes for secondary batteries
with overcharging safety)

IT Battery electrolytes
Secondary batteries
(electrolyte solns. containing disulfonylmethanes for
secondary batteries with overcharging safety)

IT Ethers, uses
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(electrolyte solns. containing disulfonylmethanes for
secondary batteries with overcharging safety)

IT Fatty acids, uses
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(esters, (fluorinated); electrolyte solns. containing
disulfonylmethanes for secondary batteries with
overcharging safety)

IT Ethers, uses
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(fluoroalkyl; electrolyte solns. containing
disulfonylmethanes for secondary batteries with
overcharging safety)

IT Lactones
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(γ-, (fluorinated); electrolyte solns. containing
disulfonylmethanes for secondary batteries with

- overcharging safety)
- IT 7439-93-2, Lithium, uses 7440-44-0, Carbon, uses
7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(anode active material; electrolyte solns. containing
disulfonylmethanes for secondary batteries with
overcharging safety)
- IT 12057-17-9, Lithium manganese oxide (LiMn2O4)
12190-79-3, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode active material; electrolyte solns. containing
disulfonylmethanes for secondary batteries with
overcharging safety)
- IT 7791-03-9, Lithium perchlorate 14024-11-4,
Lithium tetrachloroaluminate 14283-07-9, Lithium
tetrafluoroborate 18424-17-4, Lithium
hexafluoroantimonate 21324-40-3, Lithium
hexafluorophosphate 29935-35-1, Lithium
hexafluoroarsenate
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(electrolyte salt; electrolyte solns. containing
disulfonylmethanes for secondary batteries with
overcharging safety)
- IT 92-52-4, Biphenyl, uses 98-82-8, Cumene
99-62-7, 1,3-Diisopropylbenzene 101-84-8, Diphenyl ether
104-66-5, 1,2-Diphenoxyethane 110-00-9, Furan 110-62-1
, Thiophene 148-86-7, 4-Biphenyl acetate 271-89-6,
2,3-Benzofuran 700-88-9, Cyclopentylbenzene 827-52-1,
Cyclohexylbenzene 872-36-6, Vinylene carbonate 2170-13-0,
4-Biphenyl benzoate 2997-54-8 3586-14-9, 3-Phenoxytoluene
7051-16-3, 1,3-Dimethoxy-5-chlorobenzene 17175-08-5, 4-Biphenyl
methyl carbonate 22063-27-0 22063-28-1 26140-60-3, Terphenyl
26140-60-3D, Terphenyl, partially hydrogenated 82830-49-7D,
1,4-Dimethoxy-2-fluorobenzene, partially hydrogenated 97762-38-4
99591-74-9 257864-42-9, 2-Biphenyl methyl carbonate
258268-48-3 855472-38-7 855472-43-4
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(electrolyte solns. containing disulfonylmethanes for
secondary batteries with overcharging safety)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(solvent; electrolyte solns. containing disulfonylmethanes
for secondary batteries with overcharging safety)
- OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS
RECORD (1 CITINGS)

L61 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2006:918270 HCAPLUS Full-text
DOCUMENT NUMBER: 145:274968
TITLE: Nonaqueous electrolyte secondary
battery
INVENTOR(S): Iwanaga, Masato; Nishida, Nobumichi; Tsutsumi,
Shuji
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 9pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent

LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060199077	A1	20060907	US 2006-359965	20060223
JP 2006236725	A	20060907	JP 2005-48171	20050224
KR 2006094477	A	20060829	KR 2006-17530	20060223
CN 1825675	A	20060830	CN 2006-10009554	20060224
CN 100539291	C	20090909	JP 2005-48171	A 20050224

PRIORITY APPLN. INFO.:

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention concerns a non-aqueous electrolyte secondary battery with excellent discharge cycle characteristics and a charging termination potential ranging from 4.4 to 4.6 V based on lithium, consisting of a pos. electrode comprising a pos. electrode active material, a neg. electrode, and a non-aqueous electrolyte containing a non-aqueous solvent and an electrolyte salt, in which the pos. electrode active material comprises a mixture of a lithium-cobalt composite oxide containing at least both zirconium and magnesium in LiCoO₂, and a lithium-manganese-nickel composite oxide having a layered structure and containing at least both manganese and nickel, and the potential of the pos. electrode active material ranges from 4.4 to 4.6 V based on lithium, and the non-aqueous electrolyte contains at least one of aromatic compds. selected from the group consisting at least of toluene derivs., anisole derivs., biphenyl, cyclohexyl benzene, tert-Bu benzene, tert-amyl benzene, and di-Ph ether.

IT 98-06-6, tert-Butylbenzene 108-88-3D, Toluene, derivative
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)

RN 98-06-6 HCAPLUS

CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 108-88-3 HCAPLUS
 CN Benzene, methyl- (CA INDEX NAME)



INCL 429231300; 429231600; 429224000; 429223000; 429326000
 IPCI H01M0004-52 [I,A]; H01M0004-50 [I,A]; H01M0010-40 [I,A]; H01M0010-36 [I,C*]
 NCL 429/231.300; 429/223.000; 429/224.000; 429/231.600; 429/326.000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte secondary battery
 IT Battery cathodes
 Battery electrolytes
 Secondary batteries
 (nonaq. electrolyte secondary battery)
 IT Aromatic compounds
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 623-53-0, Ethyl methyl carbonate 162684-16-4, Lithium
 manganese nickel oxide 182442-95-1, Cobalt lithium
 manganese nickel oxide 532934-38-6, Cobalt lithium
 manganese nickel oxide (Co_{0.34}LiMn_{0.33}Ni_{0.33}O₂) 642999-33-5,
 Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 92-52-4, Biphenyl, uses 98-06-6, tert-Butylbenzene
 100-66-3D, Anisole, derivative 101-84-8, Diphenyl ether
 108-88-3D, Toluene, derivative 827-52-1, Cyclohexylbenzene
 872-36-6, Vinylene carbonate 2049-95-8, tert-Amylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary battery)

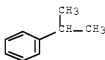
L61 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2006:600714 HCAPLUS Full-text
 DOCUMENT NUMBER: 145:48637
 TITLE: Secondary nonaqueous electrolyte
 batteries containing specific additives
 in organic electrolyte solutions
 INVENTOR(S): Oga, Keisuke; Iwanaga, Masato; Oshita, Ryuji
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006164742	A	20060622	JP 2004-354336	20041207
PRIORITY APPLN. INFO.:			JP 2004-354336	20041207

- AB The batteries consist of cathodes containing hetero element-containing LiCoO₂ cathode active mass with filling d. ≥ 3.6 g/cm³, anodes containing carbonaceous material anode active mass, and organic electrolyte solns. containing (a) alkylbenzene derivs., cycloalkylbenzene derivs, or biphenyl having tertiary carbon adjoining to Ph group and (b) Et diethylphosphinate. The batteries prevent swelling during long-term charge discharge cycles, and improve residual capacity.
- IT 92-52-4, Biphenyl, uses 98-82-8, Cumene
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (additive for electrolyte solution; secondary nonaq. electrolyte batteries containing specific additives in organic electrolyte solns.)
- RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



- RN 98-82-8 HCAPLUS
 CN Benzene, (1-methylethyl)- (CA INDEX NAME)



- IPCI H01M0010-40 [I,A]; H01M0010-36 [I,C*]; H01M0004-02 [I,A]; H01M0004-58 [I,A]
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST battery cathode lithium cobalt oxide zirconium; carbonaceous anode graphite battery; electrolyte battery cyclohexylbenzene ethyl diethylphosphinate battery
- IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); USES (Uses)
 (anode; secondary nonaq. electrolyte batteries containing specific additives in organic electrolyte solns.)
- IT Secondary batteries
 (lithium; secondary nonaq. electrolyte batteries containing specific additives in organic electrolyte solns.)
- IT Battery anodes
 Battery cathodes
 Battery electrolytes
 (secondary nonaq. electrolyte batteries containing specific additives in organic electrolyte solns.)
- IT 92-52-4, Biphenyl, uses 98-82-8, Cumene
 99-62-7, 1,3-Diisopropylbenzene 100-18-5, 1,4-Diisopropylbenzene
 135-98-8, 1-Methylpropylbenzene 700-88-9, Cyclopentylbenzene
 827-52-1, Cyclohexylbenzene 1014-41-1,
 1,4-Bis(1-methylpropyl)benzene 1079-96-5,

1,3-Bis(1-methylpropyl)benzene 4775-09-1, Ethyl diethylphosphinate
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)

(additive for electrolyte solution; secondary nonaq.
 electrolyte batteries containing specific additives
 in organic electrolyte solns.)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)

(anode active mass; secondary nonaq. electrolyte
 batteries containing specific additives in organic
 electrolyte solns.)

IT 7440-32-6, Titanium, uses 7440-67-7, Zirconium, uses 7782-41-4,
 Fluorine, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)

(cathode active mass containing; secondary nonaq. electrolyte
 batteries containing specific additives in organic
 electrolyte solns.)

IT 147683-99-6, Cobalt lithium zirconium oxide

RL: DEV (Device component use); USES (Uses)

(cathode active mass; secondary nonaq. electrolyte
 batteries containing specific additives in organic
 electrolyte solns.)

IT 12190-79-3, Lithium cobalt oxide (LiCoO2)

RL: DEV (Device component use); USES (Uses)

(hetero element-containing, cathode active mass; secondary nonaq.
 electrolyte batteries containing specific additives
 in organic electrolyte solns.)

L61 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2005:219962 HCAPLUS Full-text

DOCUMENT NUMBER: 142:282886

TITLE: Nonaqueous solvent secondary battery

INVENTOR(S): Takahashi, Kentaro

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20050053843	A1	20050310	US 2004-936658	200409 09
US 7582388	B2	20090901		
JP 2005085608	A	20050331	JP 2003-316641	200309 09
TW 238554	B	20050821	TW 2004-110633	200404 16
CN 1595711	A	20050316	CN 2004-10048573	200406 08
CN 100466362	C	20090304		
PRIORITY APPLN. INFO.:			JP 2003-316641	A

200309
09

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention concerns a nonaq. solvent secondary battery with a high initial charge/discharge capacity and excellent charge/discharge characteristics at high temperature, having a pos. electrode containing a pos. electrode active material capable of reversibly occluding and releasing lithium, a neg. electrode containing a neg. electrode active material capable of reversibly occluding and releasing lithium and a non-aqueous solvent electrolyte containing (1) acrylic acid anhydride, and (2) an aromatic compound having at least one electron donating group, wherein the electron donating group comprises at least one member selected from any of the alkyl group, alkoxy group, alkylamino group and amine, provided that each of the alkyl group, alkoxy group and alkylamino group includes a halogen substituted group and a cycloaliph. group.

IT 98-06-6, tert-Butylbenzene 108-88-3, Toluene,
uses
RL: DEV (Device component use); USES (Uses)
(nonaq. solvent secondary battery)

RN 98-06-6 HCAPLUS

CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 108-88-3 HCAPLUS

CN Benzene, methyl- (CA INDEX NAME)



INCL 429329000; 429303000

IPCI H01M0006-16 [I,A]; H01M0006-14 [I,A]

IPCR H01M0004-02 [I,C*]; H01M0004-02 [I,A]; H01M0004-58 [I,C*];
H01M0004-58 [I,A]; H01M0010-00 [I,C*]; H01M0010-00 [I,A];
H01M0010-36 [I,C*]; H01M0010-40 [I,A]; H01M0006-16 [I,C];
H01M0006-16 [I,A]; H01M0006-14 [I,C]; H01M0006-14 [I,A]

NCL 429/329.000; 429/303.000; 429/301.000; 429/324.000; 429/326.000;
429/327.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq solvent secondary battery

IT Anhydrides
RL: DEV (Device component use); USES (Uses)
(cyclic; nonaq. solvent secondary battery)

IT Battery electrolytes
Secondary batteries
(nonaq. solvent secondary battery)

IT Aromatic compounds
Carbonaceous materials (technological products)

RL: DEV (Device component use); USES (Uses)

(nonaq. solvent secondary battery)

IT 62-53-3, Aniline, uses 85-42-7, 1,2-Cyclohexane dicarboxylic acid anhydride 85-44-9, Phthalic acid anhydride 98-06-6, tert-Butylbenzene 98-51-1, 4-tert-Butyltoluene 98-82-8, Cumene 100-41-4, Ethylbenzene, uses 100-61-8, n-Methylaniline, uses 100-66-3, Anisole, uses 103-65-1, Propylbenzene 103-69-5, n-Ethylaniline 103-73-1, Ethoxybenzene 104-51-8, Butylbenzene 104-93-8, 4-Methylanisole 108-30-5, Succinic acid anhydride, uses 108-31-6, Maleic acid anhydride, uses 108-32-7, Propylene carbonate 108-55-4, Glutaric acid anhydride 108-67-8, 1,3,5-Trimethylbenzene, uses 108-88-3, Toluene, uses 109-17-1, Tetraethylene glycol dimethacrylate 119-64-2, 1,2,3,4-Tetrahydronaphthalene 121-69-7, n,n-Dimethylaniline, uses 129-64-6, Norbornene-endo-2,3-dicarboxylic acid anhydride 135-98-8, sec-Butylbenzene 452-10-8, 2,4-DiFluoroanisole 456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole 496-11-7, Indane 535-77-3, 3-Isopropyltoluene 538-68-1, Amylbenzene 538-93-2, Isobutylbenzene 622-85-5, Propoxybenzene 626-25-5, Glycolic acid anhydride 701-30-4 827-52-1, Cyclohexylbenzene 873-49-4, Cyclopropylbenzene 935-79-5, cis-1,2,3,6-Tetrahydropthalic acid anhydride 1007-26-7, (2,2-Dimethylpropyl)benzene 1131-15-3 2049-95-8, tert-Amylbenzene 2959-96-8 4100-80-5 4437-85-8, Butylene carbonate 17347-61-4 28928-97-4 29316-05-0, sec-Amylbenzene 93343-10-3, 3,5-DiFluoroanisole 124221-30-3 847484-87-1

RL: DEV (Device component use); USES (Uses)

(nonaq. solvent secondary battery)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L61 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2004:352048 HCAPLUS Full-text

DOCUMENT NUMBER: 140:378001

TITLE: Secondary nonaqueous electrolyte battery

INVENTOR(S): Matsui, Toru; Deguchi, Masaki; Sonoda, Kumiko; Nishimura, Makiko; Koshina, Shigeru

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan; Panasonic Corporation

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004134261	A	20040430	JP 2002-298206	20021011
JP 4313017	B2	20090812		
PRIORITY APPLN. INFO.:			JP 2002-298206	20021011

AB The battery comprises a cathode, an anode, and a nonaq. electrolyte solution, having a solute dissolved in a solvent mixture which contains a main solvent and a secondary solvent; where the secondary solvent comprises a compound A, selected from cyclohexyl benzene, biphenyl, and/or di-Ph ether, and a compound X whose oxidation potential is 0.1-0.4 V higher than that of the compound A; and the weight ratio of the secondary solvent to the solvent mixture and the compound X to the secondary solvent is 0.01-5 and 20-99 resp.

IT 92-52-4, Biphenyl, uses 98-82-8
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solvents containing carbonates and aromatic
 compds. for secondary batteries)

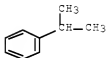
RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (CA INDEX NAME)



IPCI H01M0010-36 [I,A]

IPCR H01M0010-36 [I,C*]; H01M0010-40 [I,A]; H01M0010-36 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery nonaq electrolyte solvent
 carbonate arom compd

IT Battery electrolytes
 (electrolyte solvents containing carbonates and aromatic
 compds. for secondary batteries)

IT 92-52-4, Biphenyl, uses 96-48-0, γ -Butyrolactone
 96-49-1, Ethylene carbonate 98-82-8 100-41-4, Phenyl
 ethane, uses 101-81-5, Diphenyl methane 101-84-8, Diphenyl ether
 105-58-8, Diethyl carbonate 108-88-3, Phenyl methane, uses
 321-60-8, 2-Fluorobiphenyl 330-93-8, Bis(4-fluorophenyl) ether
 362-59-4, 2-Trifluoromethyl biphenyl 396-64-5 519-73-3,
 Triphenyl methane 527-21-9, Tetrafluoro-p-benzoquinone 623-53-0,
 Ethyl methyl carbonate 791-28-6, Triphenylphosphine oxide
 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate
 960-71-4, Triphenyl borane 2367-02-4, 4-Trifluoromethyl diphenyl
 ether 14283-07-9, Lithium tetrafluoroborate
 21324-40-3, Lithium hexafluorophosphate 142990-38-3
 142990-39-4 684215-50-7 684215-51-8
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solvents containing carbonates and aromatic
 compds. for secondary batteries)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS
 RECORD (4 CITINGS)

L61 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
ACCESSION NUMBER: 2003:982461 HCAPLUS [Full-text](#)
DOCUMENT NUMBER: 140:44701
TITLE: Redox mediator as an overcharge protection agent
for 4 V class lithium-ion rechargeable
cells
AUTHOR(S): Shima, Kunihisa; Ue, Makoto; Yamaki, Jun-ichi
CORPORATE SOURCE: Mitsubishi Chemical Group Science and Technology
Research Center, Inc., Ami, Inashiki, Ibaraki,
300-0332, Japan
SOURCE: Electrochemistry (Tokyo, Japan) (2003), 71(12),
1231-1235
CODEN: EECTFA; ISSN: 1344-3542
PUBLISHER: Electrochemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English

AB It is well-known that an aromatic compound such as biphenyl is added into
electrolyte solns. to prevent lithium-ion batteries from overcharging,
generating hydrogen gas under overcharging conditions. We have examined the
oxidative behaviors of one-benzene-ring aromatic compds. including benzene,
toluene, ethylbenzene, cumene, tert-butylbenzene, and cyclohexylbenzene under
the overcharging conditions. We have found that aromatic compds. without
hydrogen atom at the benzylic position such as tert-butylbenzene generated
mainly carbon dioxide, whereas those with hydrogen atom at the benzylic
position showed polymerization accompanied by hydrogen evolution. It was
considered that tert-butylbenzene works as a redox mediator, which mediates
the oxidative decomposition of carbonate solvents evolving the carbon dioxide.
IT 98-06-6, tert-Butylbenzene 108-88-3, Toluene,
uses
RL: MOA (Modifier or additive use); USES (Uses)
(aromatic compound redox mediators as overcharge protection agent for
4 V class lithium-ion batteries)
RN 98-06-6 HCAPLUS
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 108-88-3 HCAPLUS
CN Benzene, methyl- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium ion battery arom compd redox mediator
overcharge protection
IT Secondary batteries
(aromatic compound redox mediators as overcharge protection agent for
4 V class lithium-ion batteries)

IT 71-43-2, Benzene, uses 98-06-6, tert-Butylbenzene
 98-82-8, Cumene 100-41-4, Ethylbenzene, uses 108-88-3,
 Toluene, uses 827-52-1, Cyclohexylbenzene 1014-60-4,
 1,3-Di-tert-butylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (aromatic compound redox mediators as overcharge protection agent for
 4 V class lithium-ion batteries)

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS
 RECORD (8 CITINGS)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L61 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2003:853424 HCAPLUS Full-text
 DOCUMENT NUMBER: 139:352674
 TITLE: Nonaqueous electrolyte secondary
 battery
 INVENTOR(S): Mori, Sumio
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan; GS Yuasa
 Co., Ltd.
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003308875	A	20031031	JP 2002-115896	200204 18
JP 4625231	B2	20110202	JP 2002-115896	200204 18

PRIORITY APPLN. INFO.:

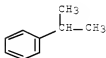
AB The secondary battery comprises a cathode, an anode, and nonaq. electrolyte
 containing 21 of sultone compds. (e.g. propane sultone, propene sultone,
 butane sultone), cyclic sulfates (e.g. glycol sulfate, propylene glycol
 sulfate), and vinylene carbonates, and 21 of derivs. of alkylbenzenes having
 tertiary carbon binding to the Ph groups (e.g. cumene, 1,3-diisopropyl
 benzene, 1,4-diisopropyl benzene, 1-Me Pr benzene, 1,3-bis(1-Me Pr)benzene,
 1,4-bis(1-Me Pr)benzene), cycloalkyl benzenes (e.g. cyclohexyl benzene,
 cyclopentyl benzene), and biphenyl derivs. (e.g. biphenyl, 2-fluoro biphenyl,
 2-bromo biphenyl, 2-chloro biphenyl). The battery is excellent in high
 temperature exposure characteristics.

IT 92-52-4, Biphenyl, uses 98-82-8, Cumene
 RL: NUU (Other use, unclassified); USES (Uses)
 (nonaq. electrolyte secondary battery)

RN 92-52-4 HCAPLUS
 CN 1,1'-Biphenyl (CA INDEX NAME)



RN 98-82-8 HCAPLUS
 CN Benzene, (1-methylethyl)- (CA INDEX NAME)



IPCI H01M0010-0567 [I,A]; H01M0010-052 [I,A]
 IPCR H01M0010-36 [I,C*]; H01M0010-40 [I,A]
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte secondary battery high temp
 exposure
 IT Battery electrolytes
 Secondary batteries
 (nonaq. electrolyte secondary battery)
 IT 92-52-4, Biphenyl, uses 98-82-8, Cumene
 99-62-7, 1,3-Diisopropyl benzene 100-18-5, 1,4-Diisopropyl benzene
 135-88-8, 1-Methylpropyl benzene 321-60-8, 2-Fluoro biphenyl
 700-88-9, Cyclopentyl benzene 827-52-1, Cyclohexylbenzene
 1014-41-1, 1,4-Bis(1-methylpropyl)benzene 1079-96-5,
 1,3-Bis(1-methylpropyl)benzene 1120-71-4, Propane sultone
 1633-83-6, Butane sultone 2051-60-7, 2-Chloro biphenyl
 2052-07-5, 2-Bromo biphenyl 44508-66-9, 1-Propene-2-sulfonic acid
 478784-91-7, Ethylene glycol sulfate
 RL: NUU (Other use, unclassified); USES (Uses)
 (nonaq. electrolyte secondary battery)
 OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS
 RECORD (2 CITINGS)

L61 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 2003:56664 HCAPLUS Full-text
 DOCUMENT NUMBER: 138:109598
 TITLE: Secondary nonaqueous-electrolyte battery
 containing aromatic additive for conducting
 polymer generation
 INVENTOR(S): Kozuki, Kiyomi; Hojo, Nobuhiko; Morikawa,
 Norimoto; Eda, Nobuo
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003022838	A	20030124	JP 2001-207502	

200107
09

PRIORITY APPLN. INFO.:

JP 2001-207502

200107
09

AB The title battery is equipped with a porous polyolefin separator and a nonaq. electrolyte containing an aromatic additive which polymerizes under overcharging at battery voltage higher than maximum working voltage and a part of the generated polymer is oxidized under further increase of voltage to give a conducting polymer by doping of an electrolyte anion to a generated pos. charge for internal short circuit generation. The separator has pore nos. ≤ 100 nos./ μm^2 measured by the author's method based on a.c. resistance. The battery provides high safety under overcharging at high temperature

IT 110-02-1, Thiophene 827-52-1,
Phenylcyclohexane
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(battery containing porous polyolefin separator and electrolyte containing aromatic additive for conducting polymer generation)

RN 110-02-1 HCAPLUS
CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS
CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C*]; H01M0002-18 [ICS,7]; H01M0002-14 [ICS,7,C*]
IPCR H01M0002-14 [I,C*]; H01M0002-18 [I,A]; H01M0010-36 [I,C*]; H01M0010-40 [I,A]
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST arom additive conducting polymer nonaq electrolyte secondary battery; porous polyolefin separator nonaq battery safety
IT Battery electrolytes
Conducting polymers
Safety
Secondary battery separators
(battery containing porous polyolefin separator and electrolyte containing aromatic additive for conducting polymer generation)

IT Polyolefins
RL: DEV (Device component use); USES (Uses)
(battery containing porous polyolefin separator and electrolyte containing aromatic additive for conducting polymer

generation)
 IT Secondary batteries
 (lithium; battery containing porous polyolefin
 separator and electrolyte containing aromatic additive for conducting
 polymer generation)
 IT 9002-88-4, Polyethylene 21324-40-3, Lithium
 hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)
 IT 84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses 101-84-8, Diphenyl
 ether 110-00-9, Furan 110-02-1, Thiophene 120-72-9,
 Indole, uses 827-52-1, Phenylcyclohexane 17249-80-8,
 3-Chlorothiophene
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (battery containing porous polyolefin separator and
 electrolyte containing aromatic additive for conducting polymer
 generation)

L61 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 2001:31794 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 134:103242

TITLE: Secondary nonaqueous electrolyte
 batteries and devices using the
 batteries

INVENTOR(S): Watanabe, Shoichiro; Iwamoto, Kazuya; Ueda,
 Atsushi; Nunome, Jun; Koshina, Hizuru

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: PCT Int. Appl., 37 pp., Chemical Indexing
 Equivalent to 152:243759 (JP)
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001003226	A1	20010111	WO 2000-JP4291	20000629
W: CN, KR, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 4411691	B2	20100210	JP 1999-184931	19990630
JP 2001015158	A	20010119		
EP 1215745	A1	20020619	EP 2000-940876	20000629
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
KR 2007037749	A	20070406	KR 2007-7005770	20070313
PRIORITY APPLN. INFO.:			JP 1999-184931	A

199906
30

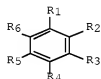
WO 2000-JP4291

W

200006
29

KR 2001-7013915

A3

200110
30OTHER SOURCE(S): MARPAT 134:103242
GI

I



II



III

AB The batteries have Li containing multiple oxide cathodes, Li intercalating anodes, and a nonaq. electrolyte solution in a solvent containing ≥ 1 organic compound, which has HOMO energy -8.5 to -11.0 eV and LUMO energy -0.135 to 3.5 eV. The compound is preferably a benzene derivative I (R1-6 = H alkyl, aryl, or amino groups, but not all R's being H; and neighboring alkyl groups may join together to form a 5- or 6-membered ring); a substituted ethylene II (R11-14 = H, alkyl, alkoxy, aryl, or oxycarbonyl R15OCO group; and alkyl substituents on the same C atom may joined together to form a 5- or 6-membered ring); or an amine derivative III (R21-23 = alkyl or aryl groups). The devices may be elec. or electronic devices.

IT 110-02-1, Thiophene 827-52-1,
Phenylcyclohexane

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)

(electrolyte solns. containing organic compound having controlled HOMO and LUMO energy for secondary lithium batteries)

RN 110-02-1 HCAPLUS

CN Thiophene (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C*]; H01M0002-34 [ICS,7];
 H01M0002-20 [ICS,7,C*]
 IPCR H01M0002-20 [I,C*]; H01M0002-34 [I,A]; H01M0006-00 [N,C*];
 H01M0006-04 [N,C*]; H01M0006-10 [N,A]; H01M0006-50 [N,A];
 H01M0010-36 [I,C*]; H01M0010-40 [I,A]; H01M0010-42 [N,C*];
 H01M0010-42 [N,A]
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST secondary lithium battery electrolyte solvent
 org compd
 IT Battery electrolytes
 (electrolyte solns. containing organic compound having controlled HOMO and
 LUMO energy for secondary lithium batteries)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 21324-40-3, Lithium hexafluorophosphate 51013-18-4,
 Methylpyrrolidone
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO and
 LUMO energy for secondary lithium batteries)
 IT 77-73-6, Dicyclopentadiene 80-62-6, Methyl methacrylate 91-21-4,
 1,2,3,4-Tetrahydroisoquinoline 91-73-6, N-Phenyl dibenzylamine
 92-52-4, Biphenyl, uses 92-54-6, 1-Phenylpiperazine 92-94-4,
 p-Terphenyl 110-02-1, Thiophene 111-02-4, Squalene
 477-75-8, Triptycene 513-81-5, 2,3-Dimethyl-1,3-butadiene
 612-71-5, 1,3,5-Triphenylbenzene 613-31-0, 9,10-Dihydroanthracene
 620-40-6, Tribenzylamine 695-12-5, Vinylcyclohexane 764-99-8,
 Diethylene glycol divinyl ether 827-52-1,
 Phenylcyclohexane 855-38-9, Tris-(4-methoxyphenyl)phosphine
 926-02-3, tert-Butyl vinyl ether 992-04-1, Hexaphenylbenzene
 1087-02-1, 1,4-Dicyclohexylbenzene 1192-37-6, Methylenecyclohexane
 1321-74-0, Divinylbenzene, uses 1610-39-5, Dodecahydrotetraphenylene
 1633-22-3, [2,2]Paracyclophane 7785-70-8 17249-80-8,
 3-Chlorothiophene 18794-84-8
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (electrolyte solns. containing organic compound having controlled HOMO and
 LUMO energy for secondary lithium batteries)
 OS.CITING REF COUNT: 0 THERE ARE 0 CAPLUS RECORDS THAT CITE THIS
 RECORD (0 CITINGS)
 REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

 L61 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN
 ACCESSION NUMBER: 1964:411078 HCAPLUS Full-text
 DOCUMENT NUMBER: 61:11078
 ORIGINAL REFERENCE NO.: 61:1777a-c
 TITLE: Reduction of organic compounds by
 lithium in low molecular weight amines.
 VIII. Highly selective lithium-amine
 reducing systems. The selective reduction of
 aromatic compounds by lithium in mixed
 amine solvents
 AUTHOR(S): Benkeser, Robert A.; Agnihotri, Ram K.; Burrous,
 Merwyn L.; Kaiser, Edwin M.; Mallan, Jean M.;
 Ryan, Patrick W.
 CORPORATE SOURCE: Purdue Univ., West Lafayette, IN
 SOURCE: Journal of Organic Chemistry (1964), 29(6),
 1313-16
 CODEN: JOCEAH; ISSN: 0022-3263
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

OTHER SOURCE(S):

CASREACT 61:11078

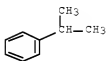
AB cf. CA 55, 1412d; 58, 11228h. Changes in the primary amines normally employed as solvents for reducing aromatic compds. with Li have a marked effect upon product composition. Systematic variation of the solvent from methyl- to ethyl- to propylamine caused a gradual increase in the % 1-alkylcyclohexenes obtained from the reduction of alkylbenzenes. The effect was even greater when the primary amine was diluted with a secondary amine, e.g. Me₂NH or morpholine. Addition of these secondary amines provided much greater selectivity in the reduction and lowered the overall volatility of the solvent system, affording greater ease of handling. The equilibrium isomer distributions of methyl- and tert-butylcyclohexene were determined. It seemed unlikely that the monoolefins produced were isomerized to any appreciable extent; the final product composition seemed determined by the nature and concns. of the cyclohexadiene precursors.

IT 98-82-8, Cumene

(reduction by Li and amines)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (CA INDEX NAME)



IT 92-52-4, Biphenyl 98-06-6, Benzene,
tert-butyl- 108-88-3, Toluene

(reduction of, by Li and amines)

RN 92-52-4 HCAPLUS

CN 1,1'-Biphenyl (CA INDEX NAME)



RN 98-06-6 HCAPLUS

CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 108-88-3 HCAPLUS

CN Benzene, methyl- (CA INDEX NAME)



CC 35 (Noncondensed Aromatic Compounds)
 IT Reduction
 (of alkylbenzenes, by Li and amines)
 IT 98-86-2, Acetophenone
 ((electrolytic), by Li and amines)
 IT 74-89-5, Methylamine 75-04-7, Ethylamine 75-31-0, Isopropylamine
 75-50-3, Trimethylamine 107-10-8, Propylamine 107-15-3,
 Ethylenediamine 110-91-8, Morpholine 124-40-3, Dimethylamine
 (alkylbenzene reduction by Li and)
 IT 7439-93-2, Lithium
 (alkylbenzene reduction by amines and)
 IT 71-43-2, Benzene
 (derivatives, reduction of alkyl, by Li and amines)
 IT 60-12-8, Phenethyl alcohol 98-82-8, Cumene 696-29-7,
 Cyclohexane, isopropyl-
 (reduction by Li and amines)
 IT 91-20-3, Naphthalene 92-52-4, Biphenyl 98-06-6
 , Benzene, tert-butyl- 108-88-3, Toluene
 (reduction of, by Li and amines)
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS
 RECORD (1 CITINGS)

L61 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1963:468800 HCAPLUS Full-text

DOCUMENT NUMBER: 59:68800

ORIGINAL REFERENCE NO.: 59:12665c-d

TITLE: An electrochemical method of reducing aromatic
 compounds selectively to dihydro or tetrahydro
 products

AUTHOR(S): Benkeser, Robert A.; Kaiser, Edwin M.

CORPORATE SOURCE: Purdue Univ., West Lafayette, IN

SOURCE: Journal of the American Chemical Society (1963),
 85(18), 2858-9

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

OTHER SOURCE(S): CASREACT 59:68800

AB In a simple electrolytic cell with an asbestos divider separating anode and
 cathode, aromatic hydrocarbons were reduced to cycloolefins. Similarly, but
 without the divider, 1,4-dihydro compds. were obtained. With the cell
 divided, anhydrous MeNH₂ and LiCl were placed in each compartment, and the
 hydrocarbon in the cathode. Thus, 12 g. cumene, 17 g. LiCl, and 450 ml. MeNH₂
 (in each compartment) treated with 50,000 coulombs gave 75% product,
 consisting of 89% isopropylcyclohexenes (I) and 11% cumene, while without the
 divider, the same quantities gave 82% product, consisting of 78% 2,5-
 dihydroisopropylbenzene, 6% I, 13% cumene, and 3% unidentified diene. Similar
 results were obtained with C₆H₆, PhMe, PhEt, and PhCMe₃. It was postulated
 that the actual reducing agent was Li generated at the cathode.

IT 98-06-6, Benzene, tert-butyl-
 (reduction of, electrochem)

RN 98-06-6 HCAPLUS

CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



IT 108-88-3, Toluene
 (reduction of, electrochem.)
 RN 108-88-3 HCAPLUS
 CN Benzene, methyl- (CA INDEX NAME)



CC 35 (Noncondensed Aromatic Compounds)
 IT Reduction
 (electrochem. or electrolytic, of aromatic
 hydrocarbons)
 IT 71-43-2, Benzene
 (reduction of, by electrolysis)
 IT 98-06-6, Benzene, tert-butyl-
 (reduction of, electrochem.)
 IT 108-88-3, Toluene
 (reduction of, electrochem.)
 OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS
 RECORD (8 CITINGS)

=> d his

(FILE 'HOME' ENTERED AT 14:17:27 ON 30 MAR 2011)

FILE 'HCAPLUS' ENTERED AT 14:17:50 ON 30 MAR 2011

E US2006-588481/AP

L1 2 S E3

L2 1 S 2005:823988/AN
 SEL RN

FILE 'REGISTRY' ENTERED AT 14:19:47 ON 30 MAR 2011

L3 45 S E1-45

FILE 'REGISTRY' ENTERED AT 14:20:52 ON 30 MAR 2011

E BIPHEYL/CN

E BIPHENYL/CN

L4 1 S E3

E ISOPROPYLBENZENE/CN

L5 1 S E3

E VINYL BENZENE/CN

L6 1 S E3

E ETHYLBENZENE/CN

L7 1 S E3

E TOLUENE/CN

L8 1 S E3

E T-BUTYLBENZENE/CN

L9 1 S E3
E MESITYLENE/CN
L10 1 S E3
E BROMOETHYLBENZENE/CN
L11 1 S E3
E THIOPHENE/CN
L12 1 S E3
E CYCLOHEXYLBENZENE/CN
L13 1 S E3
E FURAN/CN
L14 1 S E3
E FLUOROBIPHENYL/CN
L15 1 S E3

FILE 'HCAPLUS' ENTERED AT 14:42:32 ON 30 MAR 2011

L16 47196 S L4
L17 13306 S L5
L18 81745 S L6
L19 32688 S L7
L20 115160 S L8
L21 3436 S L9
L22 10794 S L10
L23 42 S L11
L24 14762 S L12
L25 1834 S L13
L26 11850 S L14
L27 12 S L15
L28 QUE (LI OR LITHIUM) (N) SALT
L29 QUE ELECTROLY?
L30 QUE ELECTROLY? (N) (SOLVENT OR SOLUTION)
L31 799 S L16 AND L17
L32 11 S L31 AND L29
L33 2 S L32 AND L28
L34 8046 S L18 AND L19
L35 44 S L34 AND L29
L36 2 S L35 AND L28
L37 QUE LI OR LITHIUM
L38 4 S L35 AND L37
L39 QUE BATTERY
L40 4 S L35 AND L39
L41 4 S L36 OR L38 OR L40
L42 6 S L32 AND L37
L43 6 S L32 AND L39
L44 7 S L33 OR L42-43
L45 1951 S L20 AND L21
L46 27 S L45 AND L29
L47 1 S L46 AND L28
L48 6 S L46 AND L39
L49 7 S L46 AND L37
L50 8 S L48 OR L49
L51 0 S L22 AND L23
L52 49 S L24 AND L25
L53 12 S L52 AND L37
L54 6 S L53 AND L28
L55 10 S L52 AND L39
L56 12 S L53 OR L55
L57 10 S L53 AND L55
L58 6 S L54 AND L30
L59 0 S L26 AND L27
L60 8 S L36 OR L47 OR L58 OR L33

L61 16 S (L41 OR L44 OR L50 OR L57) NOT L60
 L62 7 S L60 NOT L1

 L63 27139 S (L16 OR L18 OR L20 OR L22 OR L24 OR L26) AND (L25 OR L1
 L64 315 S L63 AND L29
 L65 108 S L64 AND L37
 L66 37 S L65 AND L28
 L67 24 S L66 AND L30
 L68 QUE ADDITIV?
 L69 17 S L67 AND L68
 L70 QUE (FIRST OR 1ST OR 1(W)ST) (2N)L68
 L71 1 S L69 AND L70
 L72 22753 S (L20 OR L22 OR L24 OR L26) AND (L25 OR L17 OR L19 OR L2
 L73 215 S L72 AND L29
 L74 43 S L73 AND L37
 L75 11 S L74 AND L28
 L76 4 S L75 AND L68
 L77 1 S L76 AND L70
 L78 11 S L75-77
 L79 18 S (L69 OR L78) NOT (L61 OR L62)
 L80 17 S L79 NOT L1

=>